JANUARY/FEBRUARY 1990

XIO3

GARDEN CITY A.C.E.

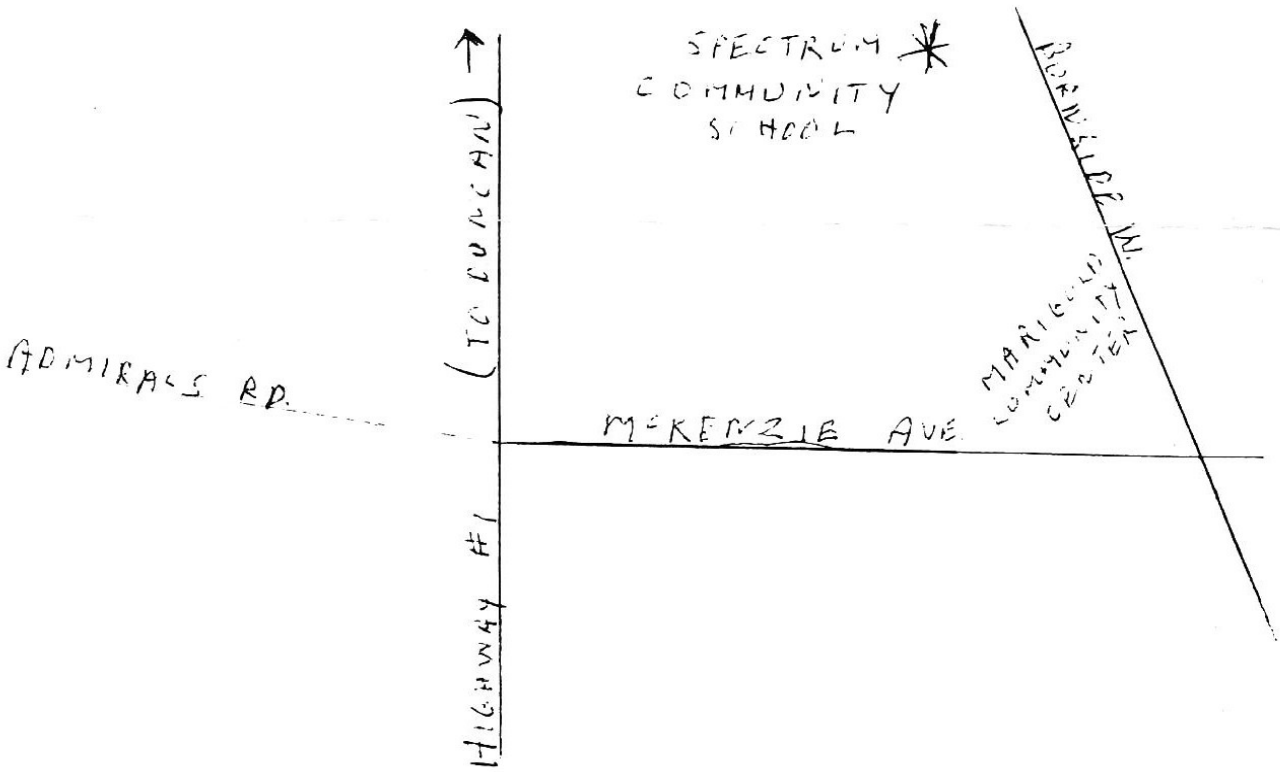
BOX 6578, STATION C., VICTORIA B.C., CANADA V8P 5N7

JANUARY 25th MEETING IS ELECTION NIGHT !!!

NOTICE OF ELECTION

Elections for Garden City Computer Enthusiasts' executive officers will take place at the club's Annual General Meeting to be held in our new meeting place, room 208 in Spectrum Community School (See map below). Because of the fire which destroyed the Gordon Head library, we were informed that our meeting place in the Saanich-Victoria branch was being pre-empted for storage. Spectrum School has filled the gap. The elections take place at 7 p.m. on Thursday, the 25th of January 1990. Members interested in running for any of the following positions are urged to forward their names to any member of the current executive.

President	Vice-president	Secretary	Treasurer
8-bit Librarian	16-bit Librarian	Editor	Directors



ATARI NEWS AND RUMORS

We hear a lot about the growing popularity of IBM clones (computers of course). Some clone makers are announcing low end computers for the home market. An article in October 1989 Computer Shopper, entitled "Exposing the Myth of Low End Computing" threw some cold water on their prospects. To compete on the home market a clone would have to be low priced; it would be a stripped down model. According to the Computer Shopper article, this would not do. It suggested that home computers are bought mainly for their novelty, entertainment and educational values. Personal productivity and business uses are a secondary consideration. To compete with the Atari ST, Amiga 500 or Apple IIgs, a clone would need the speed of a 80286 or 80386 microprocessor, an EGA or VGA level of color and a sound synthesizer board. A clone with these features would run up to more than double the cost of a 520ST and color monitor.

While a few homes may have them, most of the Apple IIgs' are in schools. There, entertainment use is discouraged and the advanced color or sound capabilities of the IIgs are seldom used. So the home market is left to Atari and Commodore. Increasingly, it is a battle between the ST and Amiga computers. And yet if Jack Tramiel had been a little more generous, Atari might now have the whole home market to itself. What happened? Well it's a long story, I hope you don't mind.

Commodore, under Jack Tramiel, was a pioneer personal computer company. One characteristic of its computers was that a new model was not very compatible with the earlier models. Since the new models were superior to their predecessors, this did not hurt Commodore sales. The high point came with the Commodore 64. It was cheap, powerful and popular. Atari tried to meet the competition with the Atari 1200XL, which was relatively expensive and unpopular. The 1200XL was a financial disaster. Adding that to the collapse of the game machine market, Atari nearly went under. All that kept Atari afloat were the profits from its arcade division and Warner Communication's credit line.

Soon it was Commodore's turn. As an encore to the succesful '64, Commodore introduced the Plus-4 computer and the Commodore 16. In keeping with Commodore tradition, neither of these computers was compatible with the '64 (or with each other). They were not really any better than the '64 either. Hardly anyone bothered to buy them. Commodore's shareholders, used to continuous profits, got very upset over the sudden losses. The upshot of all this was that Jack Tramiel lost control of his own company and quit in a huff.

Later Jack surfaced again and bought up Atari's money-losing consumer products division, which he named Atari Corporation. He lured away the best research and development people from Commodore. This put a serious crimp in Commodore's ability to create new products.

At the same time, Commodore was in a very difficult financial bind. Something was needed to convince the money lenders that Commodore was still capable of creating future profits. The only new product it had ready was the Commodore 128. This computer could emulate the '64, and it had a CPM mode, but the 128 mode was really just another incompatible computer, only slightly better than the '64. Commodore was on the brink of receivership or worse.

Back a couple of years from this point, some former Atari employees established the Amiga Corporation. Among them was Jay Miner, a integrated circuit designer who was responsible for the Antic graphics chip in the Atari 400/800 as well as the TV interface chip (CTIA). Amiga made joysticks and other accessories to finance the development of a super game machine based on the Motorola 68000. Jay Miner produced some excellent graphics and sound chips for the game machine. Unfortunately, the game machine market collapsed.

The Amiga people decided to continue and produce a computer using the new chips. They called it the Lorraine. They had to create an operating system and other computer things. The Lorraine project got bogged down. They ran out of money. The Amiga founders were still on good terms with Atari, and Atari gave them a substantial loan. Then they were able to bring the Lorraine to the prototype stage. But a lot more money was needed to get it into production.

By this time Jack Tramiel had Atari's assets, among which was the loan to Amiga Corp. The Amiga people approached Jack. They proposed that Atari buy Amiga Corp. and produce the Lorraine computer. Jack made an offer, but it was somewhat less than they expected. So there was no deal. Apparently the Amiga founders had made personal sacrifices to keep Amiga Corp going. For instance, Jay Miner remortgaged his home to raise funds. So the value of Amiga was a very personal thing.

Amiga Corp now offered itself to Commodore. But Commodore was having internal upheavals and showed no interest. Not being able to produce and sell the Lorraine computer, Amiga had no way of raising the money needed to repay Atari's loan, and time was running out. Desparate, they returned to Atari, ready to accept Jack's offer. But by now, Atari was well on the way to perfecting its own new computer (the ST). Atari didn't need the Lorraine, but it could use Jay Miner's chip set.

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ATARI NEWS AND RUMORS

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Jack offered the Amiga people much less than before. After all, if Amiga defaulted on the loan, Atari could pick up Amiga's assets anyway.

The Amiga people rejected Jack's offer and waited for a miracle. It happened. By this time, Commodore was desperate for something to show its bankers. Amiga's proposal was reconsidered and on the day that the loan repayment was due, Commodore bought Amiga for a good price. Amiga was saved. Commodore was saved.

Now suppose Jack Tramiel had been generous (or wiser). Then, without a new product, Commodore could have been forced into receivership and its development frozen. The Lorraine/ST would be the only home computer of its power on the market. Suppose the ST design was developed as it is now, and Jay Miner's super chips had gone back into a game machine. With that competition, Nintendo and Sega might be unknown in the home market.

As it is now, Atari's game machines are losing out to the competition. The second quarter report is worse than the first with a twenty percent drop in total sales. Since computer sales continued to grow, the losses were entirely due to the game machines. There was an overall profit of only $300,000 on sales of $82.7 million. The rather small profit was also due to currency exchange fluctuations which made Atari products, imported from Asia, more costly. Rather than raise prices, Atari took a smaller profit.

The new Lynx hand held game machine may put Atari back in the game market. But it had not appeared in the stores for Christmas, while Nintendo had its Christmas sales stock already on the shelves. If Atari can hang in the game market for another year, it might recover its previous position with the Lynx. But it will have to create a more powerful game player to get ahead of the competition.

Atari's hand held MS DOS computer, the Portfolio looks promising. It's in the stores, it got moderately good reviews, and it's being advertised (I saw it in Time magazine and the Pennysaver!). Unknown to most computer enthusiasts, there has been a very lucrative market for hand held computers for some years. These computers are customized for particular industries. They look like calculators and are usually priced in the one to five thousand dollar range. They are used by delivery drivers, meter readers, stock takers and the like. A programmable MS DOS computer at a low price could compete in this market. In fact it is rumored that several very large orders have been placed for the Portfolio by industries in the U.S.

Sig Hartmann, Atari's diplomatic vice-president retired in November after five years of service. Yes, the ST is five years old! Last year Sig said that Atari had to turn itself around in the American computer market in 1989. Atari hasn't quite done that, but it has made a good start. Atari has had a lot of products under development. It will take a while to get them all on the market. They seem to be taking a lot of care to get it right the first time.

The new TOS 1.4, now called "Rainbow TOS", is available through Atari dealers. All reports confirm that it is free of bugs. Demand for the new ROM chips has outstripped the supply. Local dealers can get about six sets at a time. So there is a long waiting list. Elsewhere, illegal copies of TOS 1.4 have turned up. These are not copies of the the final version and contain some bugs.

Atari has engaged a large advertising company (Marken Communications) to help launch its new products. They seem to be focussing on one product at a time. This seems like a good idea. Reports from the Fall '89 Comdex in Nevada also confirm a new professional approach. The Atari exhibit was large and impressive. It attracted crowds of dealers. They were mainly interested in the Portfolio and STacy. I guess STacy will be the next product to reach the market. Reports are that STacy's backlit LCD screen is very clear and easy on the eyes, like the best Zenith LCD screens.

Other products, which I hear will be marketed in the new year, are the 1040 STE and the TT. These were on display at Comdex and appeared to be in their final form. The TT's were running under TOS and were running ST software very fast. The rumors are that a low priced 520 STE will be marketed as a game machine and introductory computor. More powerful STE computers will be available, but eventually the TT models, with their greater speed and memory will be the Atari standard for professional and business use.

While a cheap ST may hurt XE sales, Atari is continuing to support the older line and has manufactured more 130XE computers. Instead of sixteen 8K byte RAM chips, the new models have four 32K byte chips. This reduces the cost of manufacture. Unfortunately it may make RAM upgrades a little more difficult or expensive. The ROM code has been tidied up. The old keyboard self test showed a diagram of the 1200XL with its special function keys. This has been brought up to date. Also, the new self test is supposed to check all the available RAM up to 64K. There are rumors that other special chips have been improved as well. Anyway, this is good news for all 8-bit enthusiasts.

Analog has swallowed STlog and the result is a strong general magazine more like it was a few years ago. Unfortunately, the owner, Larry Flynt Publications is disappointed in the financial returns from Analog, and will discontinue publication after the December 1989 issue. This is terrible news for Atari enthusiasts.

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ATARI NEWS AND RUMORS

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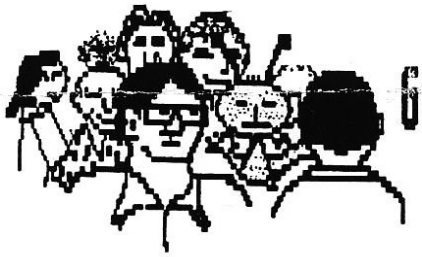
There is little enough available for us as it is and now we have lost STlog and Analog. In my opinion, Analog is the finest magazine for 8-bit Atari's. It declined in quality after LFP bought it, but it remains the best. The Analog crew are also involved in a laptop specialty magazine and a video (and computer) game magazine. These seem to be doing fairly well. I hope that LFP will hold onto these magazines and the talent that came with Analog.

And what's left may be disappearing as well. In 1989, Antic has gone from an 88 page monthly to a 43 page bimonthly magazine. Its advertisers are mostly nearby California mail order companies, all in the earthquake zone. STart has lost Andrew Reese, its editor. Other management staff have been leaving Antic. Where will it all end? Will there be no Atari computer magazines on the news stand? I regard books and periodicals next in importance to the computer itself. I guess a lot of other Atari owners don't. Atari oriented magazines on the news stand are an important form of publicity. Without them, Atari Corp. will have even more difficulty trying to increase its share of the American computer market.

I must report that John J. Anderson died in the recent earthquake in SanFrancisco. Who was John? When the Atari 800 first appeared, Creative Computing established a column called Outpost Atari. For awhile, the outpost was one of the few sources of hints and news about Atari computers. From 1982 on, the Outpost was manned by John Anderson. John was a fiercely dedicated and often controversial advocate of Atari computers. When Creative Computing folded, John found work elsewhere. But he would pop up occasionally, the same as ever, on the pages of Atari Explorer or Computer Shopper. All longtime Atari enthusiasts will be saddened at the news.

Rowland Grant



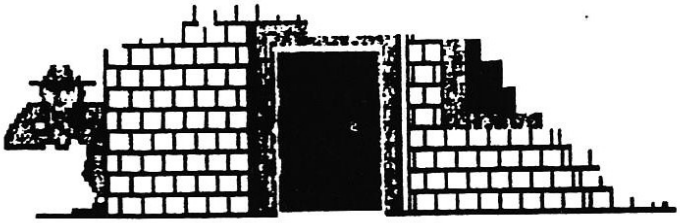
General Meeting

Our president, Bob Nex, opened the meeting with the usual reports. There was some suggestion that we should continue our subscription to STart. I for one, was of the opinion that since STart is readily available in town, it would be available to any member who wanted it. The Club's money might be better spent on ST publications that do not appear on the news stands. But after I had seen five Amiga publications sitting next to one for the ST (STart) in a local shop, I began to wonder if STart didn't merit all the help that we could give it. What's worse, if news downloads are correct, Analog/STlog will be finished in January.

Bob reminded everybody that the annual elections will be held in January. All executive positions are open. Come one, come all! Be president! Be secretary! Be librarian! Be editor! Be active!

Ted Skrecky stepped in to demonstrate some programs on his ST. Ted has been the feature performer at the last three meetings and a strong supporter at others. First, Ted demonstrated the fine art of arcing files, using the various utilities available on our library disks. Then Ted demonstrated his latest software purchase, Shufflepuck Cafe. It is quite an amazing simulation. I can see how you could want to play it all day. Ted displayed his skill against a fantastic array of shufflepuck opponents. In practice mode the software allows you to cheat a bit (quite a bit). Thanks to Ted for his interesting demonstrations and for the use of his equipment.

Rowland Grant



PEEKing around...

... I've been told by reliable authority that the only 8-bit machine being used in JOHN BRYDON's house now is the 800 XL running the Atari Chamber BBS. The 130XE is not being used. This makes it difficult for certain members of his household to type articles for 'XIO 3'. John is not the only one to do this. Seeing as how I can only accept articles saved to disk on an 8-bit, it might be time for an editor who has an ST to take over, as I am the only one of the regular contibutors who does not have an ST. This would open up the newsletter to be formatted in a true desktop publishing form. It would also contribute to the demise of the 8-bit, because it seems new ST owners forget about their 8-bit's when they purchase their new toys. It will be interesting to see who will run for editor this year ... John says the Atari Chamber will be up as soon as possible. All users will have to log on as new ... TED SKRECKY must have ants in his pants. He's only been in his new condo a couple of months and he is looking to buy a new one. I told you in a past column he was turning into a robber land baron, didn't I? ... RON THIBODEAU has been seen in a new (to him) car ... Welcome to new member DON GODDARD, recently arrived from Regina. Isn't it nice to spend winter without snow up to your you-know-what, Don? ... I'm GORD and always available at 386-0857 for any nasty news which I will pass on through the pages of this newsletter ...

TOS SWITCH

In the past few months the new Atari ST TOS 1.4 has created quite a stir in the ST community for reasons both good and bad. The good reasons I will not dispute, I have TOS 1.4 in my ST and most utility and application programs just love it. However many other entertainment type programs just hate TOS 1.4 so therefore I also have TOS 1.0 in my machine. What, you may say, changing TOSs is a hardware exercise which involves removing integrated circuits and replacing them with new ones. Therefore how can both TOSs exist in the ST at the same time? Well that is a question I quickly resolved after installing TOS 1.4 in my machine and then finding many programs that would have preferred that I stick with TOS 1.0. Basically this involves modifying the ST with a switch to select which TOS to use and then piggybacking the TOS chips on top of each other. The switch is used to control the chip enable signal on the TOS chips to select only one TOS to work at any one time. Selecting which TOS to run is done with the switch prior to turning on the computer. Details on performing this modification to your computer follow further on in the article.

If you are committed to having TOS 1.4 in your machine and installing a switch to select between your original TOS and the new one is too drastic a solution for you then you have at least a couple other options. The first option is to pull out all your registration card information for the programs that do not operate properly with TOS 1.4 and write to the manufacturers to inform them and request updates that will work with TOS 1.4. These updates may not be available at this time, or even in the near future, but you had best get on the manufacturer's mailing list for the update when it is available. The other option is to get a version of TOS that can be booted from disk. For those of you who were 8 bitters, remember the translator disk, same idea. The first 520ST came with TOS on a disk that had to be booted because the ROM based TOS was not complete. I don't know whether or not a disk based version of TOS 1.0 is still available from Atari, or whether it will work on an ST with built in TOS. I was unable to find a club member with a disk based TOS so that I could test out this option. If you get an opportunity to try this please let me know the results, or alternately lend me the disk so that I can investigate it.

A situation that many ST owners are in is that they have a version of TOS in their machines that is somewhere in between TOS 1.0 and TOS 1.4. TOS 1.0 has a copyright date of 1985. TOS 1.4 has a copyright date of 1985,86,87,88,89. If you are one of these people then you already know that many programs don't like your TOS but have no problem with a friend's machine with TOS 1.0, so what do you do? Upgrading to TOS 1.4 probably won't help you with those programs. And if the two options presented in the previous paragraph don't appeal to you, then have you thought of downgrading your TOS to 1.0? Yes I said downgrading! All you have to do is find a set of TOS 1.0 ROMs and install them in your machine in place of your existing ones. Your TOS set is probably a two chip set so this would involve soldering in four more 28 pin sockets and changing board jumpers to accommodate the six chip TOS 1.0 set. Once you have done this you may want to install a TOS switch and a set of TOS 1.4 ROMs to give you the best of both worlds, so on to the details of the TOS switch!

TOS in the Atari ST consists of 192K bytes of ROM. With TOS 1.0 this is a six chip set consisting of six 32K x 8 bit ROMs. These ROMs are arranged as three banks of two chips to make up the sixteen bit instruction words used by the 68000 microprocessor. These ROMs are identified as L0,H0,L1,H1,L2 and H2, where L refers to the low byte and H to the high byte of the sixteen bit words and 0,1 and 2 refers to the banks. TOS 1.4 also comes as a six chip set identified in the same manner. Most of the in between TOSs come as two 128K ROMs comprising one bank.

To piggyback TOSs to allow switching from one to the other, you must solder each chip of the second TOS on top of it's corresponding counterpart of the first set with all pins commoned together except the chip enables which on the 32K chips is pin 20. Use sockets to piggyback with, this way you can install TOS 1.4 on top in the sockets and easily change it in the future if a newer version of TOS becomes available. If piggybacking a two chip set on top of a six chip set, then you must also separate out two additional address pins which are different from the 32K chips, hardwire these to the jumpers. Then trace out the circuitry on the board and cut traces to isolate the chip enable pins on the TOS ROMs on the motherboard from the rest of the motherboard circuitry. Since TOS 1.0 and 1.4 consist of three banks you need to install a 3PDT switch to direct the chip enable signals to the selected set. The same chip enable signal goes to both the low and high bytes of each bank. Use one pole of the switch on each of the three banks to connect the chip enable circuitry from the ST motherboard. Connect each side of the switch to the two chip enables of each bank in turn. Use 10K pullup resistors on the chip enables to plus five volts to disable the TOS chips when not selected. Use a good quality 3PDT switch because the chip enable signals are a short pulse and need a good connection to prevent degrading the pulse. Mount the switch in a convenient location accessible when the cover is in place, as close as possible to the TOS chips to keep the wires short to prevent signal degradation.

If piggybacking TOS in a machine where the ROMs reside under the power supply then remove the original TOS from the sockets, unsolder the sockets, and solder the TOS directly to the board to allow enough room for piggybacking. When you have completed the piggybacking operation try booting the ST with the switch in either position and confirm that it comes up with TOS 1.0 and TOS 1.4 alternately. When using either TOS please keep

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8-BIT TETRIS

I am a humble owner of an Atari 800XL. I enjoy playing Tetris in the video arcades, and would love to obtain an 8-bit version for home use. However there is as yet no commercial version of this "thinking man's video game" available for 8-bit owners. Nor is there likely to be any in the forseeable future since sales of 8-bit systems have trailed off. What happens when a hopeless video game addict such as myself cannot visit the arcades often enough to play his favorite game? You experience the Tetris withdrawl syndrome, your work suffers, your home life suffers, you hallucinate geometric shapes. The prognosis is so grim that I am sure you will not want to know the gory details.

How do you spell releif- I mean relief? Give me an "A", give me a "C", give me a "T", etc, etc. Yup, I've cranked up the old Action! cart and have womped up an 8-bit version of Tetris. The main trouble with most public domain games is that they are usually written in basic and are, as a result so slow as to be virtually unplayable. Fortunately Action! games do not suffer from this rather serious defect. Indeed, I have had to incorporate a delay loop into the game in order to SLOW IT DOWN! till it becomes playable.

This Tetris implimentation uses graphics mode 10 because of the multiple colors available in that mode, and the play action is quite similar to the arcade version. Currently there are still a few minor bugs, but I hope to have them ironed out fairly soon. With my brother Edward acting as technical advisor this new version of Tetris will hopefully avoid the mistakes that Spectrum HoloByte committed in their ST version.

Douglas Skrecky

USER GROUP FIX

Public domain software is a major attraction inducing computer owners to join a user's group. Sales of 8-bit public domain software have halted at most user groups. This means that either 8-bit members already have all the software they desire or that they are fulfilling their software needs elsewhere.

Granted new software is getting a little scarce as the 8-bit system sales wind down, and due to lack of sales many group libraries seem to be also about a year behind the times. However this is probably not the main cause for the decline in sales of 8-bit software. The real cause is much more prosaic.

Department stores mark up most items by up to 100%, so that their cost is 50 cents on each dollar of sales. As floppy discs now cost 50 cents each, the sale price of discs of library software should be about $1. Since the price of user group 8-bit software is usually about $3 I don't think we need look any further for the cause of the decline of 8-bit memberships. I suspect both sales and profits would be much higher if 8-bit software were priced more aggressively. Remember the Atari motto: "Power Without the Price".

Computer User Groups typically either serve their membership or use them. Most groups fit into the latter category and 8-bit members are quite naturally voting with their feet. Why do most Atari groups alienate their 8-bit members? Most user groups existing in large cities operate essentially as small businesses. Only a few groups based in smaller centers actually function like clubs. The distinction between a business and a club is cash flow.

A club will aquire software primarily from its members at no cost, while a business will typically have its executive downline titles from Genie. A club will either not run a BBS or will simply pay for a line if they can convince someone (not neccesarily an Atarian) who already owns a hard disc, modem and teminal program to run a BBS for them. A business will elect one of its executive to run a BBS and then will use group funds to buy a hard disc, modem and teminal program so that said member then has the neccesary equipment to run a BBS. I don't know why most user groups are operated as businesses, nor do I know how to convince them to try operating as clubs instead. For instance in the big city most user group members are not on a first name basis and apparently will not donate software to the group so that the group executives have to download titles from Genie. All I know is that the ideal for a user group is clearly to be run as a club.

Currently no user group that I am aware of offers free software to its members. One group did offer an exchange program where empty discs were freely exchanged for library discs. However this noble experiment failed when some not-so-noble members started trading in discs with sector errors. I would like to offer a solution to this problem. Instead of trading discs themselves offer to copy library software onto discs which members bring themselves, on a best efforts basis at group meetings. This way if the member's disc contains errors that will be his problem. The bottleneck in this idea is that the copying process itself would take time and it might be difficult to satisfy the desires of software crazed members in a feeding frenzy over such freebees. This bottleneck could probably be largely eliminated by encouraging said members to bring some of their own hardware to meetings to facilitate the copying process.

Although free copying of software would cut library sales it would also be such an attraction to prospective new members that any user group which allowed it would benefit indirectly by increased membership dues. My own fearless prediction is that any user group which instituted a policy of free copying of library discs at meetings on a best efforts basis would double its membership inside of 6 months. How about it- any takers?

Douglas Skrecky

TURBO TRIO

Here are three short and easy programs. The first is a "fix", the second is a MyDOS 4.5 "mod" and the third is a new utility. Note that all three programs will only run under Turbo BASIC which is readily available to any user group member. There are two reasons for this: first to demonstrate some of Turbo's fine features and, more importantly, programming in Turbo is about ten times easier than in Atari BASIC (laziness wins again).

The version of MYDOS RAMDISK AUTOLOADER I submitted a couple months ago fits the expression "too smart by half". It works fine with 256K because, on the 256XL, an unformatted RAMdisk shows "65535 FREE SECTORS" which tells the loader formatting is needed. The rub is that an unformatted RAMdisk with the 320XE shows "255 FREE SECTORS". Since this could mean a nearly full, formatted RAMdisk, the loader doesn't format. Program A fixes the existing autorun file for the 320XE; it replaces the "smart" code with "smarter" NOP's so the loader formats any time DUP.SYS is not found in the RAMdisk. Apologies to any 320XE owners who have been "blue-ifying" the air.

Program B makes a modification to MyDOS 4.5 DUP.SYS which results in different default colours and keyboard parameters. I find a white on black display to be more readable on a monochrome monitor but you are free to select any colors you like. The values for the keyboard produce a fast, quiet cursor; to change them, refer to page 208 in MAPPING THE ATARI. If you do something that results in a GRAPHICS 0, (Copy to/from S: or E:, load Turbo BASIC, etc.) the colors revert to normal but the keyboard parameters remain as set until you hit RESET. The modification uses two loops which is why COLOR3 and HELPFG are included - just leave them at 70 and 0. All internal changes are made so that your modified DUP will be written if you "Write DOS Files" from DUP.

Program C produces a short machine language file that switches BASIC off or on. It is a toggle - if BASIC is on, it will be turned off; if off, it will be turned on. You can load the program anytime and/or, include it in an autorun file (it should be first with others appended to it). *As an autorun, it has the effect of reversing the OPTION key* so that you would need to press OPTION to enable BASIC at boot.

John Picken

```
10 REM Program A:  320XE RDLoader Fix
11 DIM PRG$(700),JSR_AFP$(3)
12 PRG$(700)=CHR$(0)
13 JSR_AFP$=CHR$(32)
14 JSR_AFP$(2)=CHR$(0)
15 JSR_AFP$(3)=CHR$(216)
16 OPEN #1,4,0,"D1:AUTORUN.SYS"
17 TRAP #EOF
18 BGET #1,ADR(PRG$),LEN(PRG$)
19 # EOF:CLOSE
20 PRG$=PRG$(1,DPEEK($0358))
21 PATCH=INSTR(PRG$,JSR_AFP$)
22 FOR B=0 TO 11
23   PRG$(PATCH+B,PATCH+B)=CHR$(234)
24 NEXT B
25 OPEN #1,8,0,"D1:AUTORUN.SYS"
26 BPUT #1,ADR(PRG$),LEN(PRG$)
27 END
```

```
10 REM Program B: Modifier for
11 REM .          MyDOS 4.5 DUP.SYS
12 DIM DUP$(7000)
13 DUP$(7000)=CHR$(0)
14 TRAP #EOF
15 OPEN #1,4,0,"D:DUP.SYS"
16 BGET #1,ADR(DUP$),7000
17 # EOF:CLOSE
18 DUP$=DUP$(1,DPEEK($0358))
19 REM Code changes inside DUP
20 RESTORE #IN_MODS
21 FOR COUNT=1 TO 14
22   READ INDEX,BYTE
23   DUP$(INDEX,INDEX)=CHR$(BYTE)
24 NEXT COUNT
25 # IN_MODS:DATA 5,78,30,32
26 DATA 31,50,32,67
27 DATA 326,52,1682,79
28 DATA 1690,79,2385,78
29 DATA 2389,26,2393,5
30 DATA 2779,79,2986,79
31 DATA 5839,54,5840,48
32 REM Code added to end of DUP
33 RESTORE #ADD_MODS
34 FOR COUNT=6639 TO 6659
35   READ BYTE
36   DUP$(COUNT)=CHR$(BYTE)
37 NEXT COUNT
38 # ADD_MODS:DATA 162,4,189,70
39 DATA 67,157,196,2
40 DATA 189,74,67,157
41 DATA 216,2,202,208
42 DATA 241,142,28,2
43 DATA 96
44 REM Default bytes at end of DUP
45 DUP$(6660)=CHR$(12):REM Colr1 Text
46 DUP$(6661)=CHR$(0):REM Colr2 Bak
47 DUP$(6662)=CHR$(70):REM Color3
48 DUP$(6663)=CHR$(0):REM Col4 Border
49 REM Ref. Mapping The Atari p.208
50 DUP$(6664)=CHR$(18):REM KRPDEL
51 DUP$(6665)=CHR$(2):REM KEYREP
52 DUP$(6666)=CHR$(1):REM NOCLIK
53 DUP$(6667)=CHR$(0):REM HELPFG
54 OPEN #1,8,0,"D:DUP.SYS"
55 BPUT #1,ADR(DUP$),6667
56 END
```

```
10 REM Program C: Makes Basic Toggle
11 CLS :? :? :? "BASIC.COM Creator"
12 ? :? "Checking data lines":?
13 TRAP #EOD1
14 DO
15   B=B+1
16   READ A
17   CS=CS+A*B
18 LOOP
19 # EOD1:RESTORE
20 IF CS=211369
21   ? :? "  Data OK. Insert disk,"
22   ? "push START to write file."
23   # KEY:ON PEEK(53279)<>6 GO# KEY
24   TRAP #DISK_ERROR
25   OPEN #1,8,0,"D1:BASIC.COM"
26   TRAP #EOD2
27   DO
28     READ A
29     PUT #1,A
30   LOOP
31   # EOD2:CLOSE
32   ? :? "BASIC.COM created."
33 ELSE
34   ? " Sorry, data incorrect."
35   # RETRY
36   ? "Please check and re-run."
37 ENDIF
38 END
39 ---------------------------------
40 # DISK_ERROR:? CHR$(253)
41 ? " DISK ERROR #";ERR:GO# RETRY
42 DATA 255,255,0,1,54,1,162,160
43 DATA 173,1,211,73,2,141,1,211
44 DATA 41,2,141,248,3,240,2,162
45 DATA 192,134,106,162,0,142,75,3
46 DATA 169,72,141,68,3,169,196,141
47 DATA 69,3,169,12,141,74,3,141
48 DATA 66,3,32,86,228,169,3,141
49 DATA 66,3,76,86,228,226,2,227
50 DATA 2,0,1
```

DISK FIX

Another horror story! Here I was downoading a file to disk, when I noticed the 'DISK FULL' sign come up. The other end didn't answer my plea to stop sending, so I sat there waiting for it to finish. I logged off and checked the disk for the file name I had used but I got an Error 170, File Not Found. Bah!

What to do? What to do? I really wanted whatever was there before the error message came up. There must be a lot of stuff that half filled that disk. If you have gone through this hassle, gather round, and lets see if we can get some of this stuff back.

I have used DISKEY for a long time, usually to find bad spots on cheap disks (and some not so cheap). So I will give you a way out of this dilemma using DISKEY. Those of you that use Disk Wizard, Sherlock, or Archiver can follow along because I will be getting DISKEY to do things to the disk that have similar outcomes, using your favorite disk repair utility. Of the disk repair utilities shown above, only Sherlock and the latest version of The Achiver will work with the 1030 enhanced disk format. This procedure of recovering lost or damaged files is not for the faint of heart, or for the wildly reckless either.

Number one and most important, use a good disk to boot up DOS and copy all the other files on that problem disk onto another disk. (An easy way to do this is to type *.*, when DOS asks for the filename to copy.) Modifying a disk brings the caution like the small words on the cigarette package; Use of this disk utility can be injurious to your disk's health - you could get a slipped disk. (Sorry about that).

Number two, use the utility to look at the disk directory. On DISKEY, <shift>? does it. You will see the first eight files on the disk. If you have a printer, get a hard copy. If not, write out the file number, file name, the first sector number of the file, and the total number of sectors used. Repeat this for all files on the disk. (DISKEY has a bug that messes you up if you try to get hard copies of the next 8 files by pressing <return>. You have to get out of the the directory mode by pressing 'X', get back into the directory mode, and keep pressing <return> until you get to the group you want printed. You have to repeat this procedure until you have printed all the files.)

In the February/March 1989 issue of the XIO3 newsletter, you will find an article called 'What's On That Disk'. It has a detailed explanation of the 8 bit Atari disk file structure. If you can't find it, here is a more limited explanation that you need to recover most of that lost file. Sectors 0 to 2, are the disk boot sectors that are put on the disk while it is being formatted. Sectors 3 to 359 are for files stored on the disk, including DOS.SYS and DUP.SYS, if they were written just after the disk was formatted. Sector 360 (and 1040 for disks formatted with 1050 enhanced density) is the Variable Table Of Contents (VTOC) sector, which keeps track of the number of sectors that have been used. Sectors 361 to 368 are the directory sectors, which give a 16 byte summary of each file, showing status (1 byte), file length (2 bytes), starting sector (2 bytes), and the filename and extension (11 bytes). Up to 8 files can be listed on each directory sector, giving a maximum of 64 (0 to 63) files per disk side. Sectors 369 to 719 are available for more file storage (sectors 721 to 1023 are also availale on enhanced density disks).

Third, we now look at the printout of the directory listing using your favorite utility. Each file is given a number, starting at 0. (The next consecutive number is given to files as they are added to disks. Files that were deleted still are shown.) The file name is shown, the sector number where the file starts, and the total number of sectors in the file. Finally the status of the file is shown, locked, deleted, or a partial file ('L' 'D', and 'NOF' in DISKEY). You should see your 'missing' filename with the partial status shown.

Fourth, use your disk utility to look at the sectors in the 'missing' file. Display the first sector on the file. With DISKEY, press 'R' <RETURN>. Type in the start sector number shown in the directory print-out of your 'NOF' file. At the bottom of the screen will be shown the 'next' or 'link' sector. Usually this is the next consecutive sector, but as this last file filled the disk, the next sector may be some previously spare sector anywhere on the disk.

Your disk utility has a file trace function, but as you really want to know where this file is, and look at the information at the same time, reading each sector in order will be longer, and you will need to have a count of the number of sectors in the 'lost' file later when you modify the directory. (Dont forget to include the first sector of your file in the count, i.e. if all or a portion of the file starts at sector 160 and is consecutive to sector 260, the count is 101 sectors). Keep an eye on the file number as you step through the sectors; if the file number changes, go back to the previous sector and make sure that you were directed to that sector. Make a note of this previous sector number, as it might be the last sector of your partial file. If you are directed to a different sector, read that, note the number, and keep going as directed. Eventually, you will come to a sector that directs you to either sector 720, 1024 (enhanced format), or to some other sector that belong to a different file. This is the last usable sector of your 'lost' file.

A utility will have facility to change the data on a sector. Make a hard copy of that sector. What should be on a file sector? The last three bytes of each file sector (bytes 125 to 127) show the file number, the next sector, and the number of data bytes in the sector.

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DISK FIX

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As there are more than 256 sectors on a disk, byte 126 needs help to count above 256. It uses the bottom two bits of byte 125, which allows a count as high as 1023. This makes the file number, also in byte 125, hard to interpret. The normal way that values are indicated in a byte is as follows:

128 64 32 16 8 4 2 1

Now the bottom two bits, have been borrowed to allow a next sector count above 255. The rest of the bits are revalued as follows:

32 16 8 4 2 1 * *

Here is an example of a sector as part of file #0, pointing to the next sector #256, bytes 125 and 126 first in binary:

```
0 0 0 0 0 0 0 1   0 0 0 0 0 0 0 0
\__File 0_/  \_Next sect. 256___/
```

In decimal and in hex, this is 01 00.

Another example; file #20, pointing to next sector 622, first in binary:

```
0 1 0 1 0 0 1 0   0 1 1 0 0 1 0 0
\___20____/ \_______622_________/
```

In decimal, byte 125 has a value of 64+16+2=82 or $52 in hex. Byte 126 has a decimal value of 64+32+4=100 or $64 in hex. Confused? Yes it is tricky at first, but the designers of the disk operating system had to cram as much information as possible on a disk, resulting in these tricky maneuvers.

Now the last sector of each file, points to sector 0, which makes bytes 125 and 126 a little easier to follow:

File no.	Byte 125		Byte 126	
	Dec.	Hex.	Dec.	Hex.
0	00	00	00	00
1	04	04	00	00
2	08	08	00	00
3	12	0C	00	00
4	16	10	00	00
5	20	14	00	00
6	24	18	00	00
7	28	1C	00	00
8	32	20	00	00
9	36	24	00	00
10	40	28	00	00
11	44	2C	00	00
--	--	--	--	--
62	248	F8	00	00
63	252	FC	00	00

Note: multiply the file number by 4 to get the value in byte 125 of the last file sector.

Lets say we have found the last useable sector of your 'lost' file. We have to modify bytes 125 and 126 to agree with the format shown above. Modifying a disk is dangerous, if you haven't got it right, you could mess up another good file. That's why you have copied all files to another disk, and made a printed copy of the last file sector before making changes. To make it clearer, lets assume that file #8 is your lost file and you got to sector 660, and it showed a link to sector 661. But when you looked at sector 661, it showed file #7. Go back to sector 660 and look at bytes 125 and 126. You should see '22' in byte 125 and '95' in byte 126. 661 is the same a $295 hex. File #8 is $20 hex. Byte 125 will contain $20 plus the $2. Now we don't want the forward reference to sector 661, so modify byte 125 to show '20' and byte 126 to show '00', (the 'last sector' flag). Your utility will ask if you want to write this modification to sector 660. Type 'Y'.

You are only half through! Lets further assume that when you traced file #8 you found it used up 330 sectors. Go to directory sector 362, and the top file shown will be #8. The first byte at the top left will probably be '03', for an incomplete file. Change this status byte to '42'. The next two bytes contain the total sectors. Change this to '4A' and '01'. This is low byte/high byte of $14A or 330 decimal. The next two bytes will contain the first sector of file #8 and need not be modified. Write this modification to sector 362.

One more thing to do. Update the V.T.O.C. With DISKEY, press <CTRL> 'V', which will automatically modify sector 360 to show the correct number of sectors in use on the disk.

If you did everything right, you have completed the repair, and you will now be able to bring up file #8 through your word processor. Happy Days!! **Geoff Corry**

EDITORIAL

The January 25th meeting of Garden City Atari Computer Enthusiasts is our Annual General Meeting. We are required by the Societies Act to have this meeting, and also to publish in our newsletter the financial statement for 1989. The reason for this is that all members of our club will receive this statement to study, and if any member has a question, it will be answered at the Annual General Meeting. This system tends to keep your Executive Committee honest.

In this months article USER GROUP FIX, Doug Skrecky mentions that user group club public domain software should be made available to club members at no cost. He also mentions that the only safe way to give out free software is for the member to provide a blank disk that the sofware required is copied to. This precludes people using disks with bad sectors, as that is the disk they take home. No sense giving a bad disk in that case.

Well, wake up and smell the silicon, Doug. Garden City A.C.E. has been using those methods since the inception of the club in 1985. We also intend to continue this way. Maybe you would be better off as a corresponding member of G.C.A.C.E. instead of being a member of a big-city organization. Just a thought in passing, Douglas. **Gordon F. Hooper**

GARDEN CITY A.C.E. CLUB 1989 FINANCIAL STATEMENT

Jan 1st 1989	Cash on hand	65.81	
	Bank balance	182.39	
	Total funds		248.20
Income			
	Membership dues	1395.00	
	PSAN sales	308.00	
	Software sales	29.00	
	Bank interest	5.21	
	Sale of Xerox copier	50.00	
	Advertising revenue	10.00	
	Total 1987 income		1797.21
Expenditures			
	Magazine subscriptions	241.06	
	PSAN purchases	289.57	
	Newsletter production	212.64	
	Postage	192.63	
	Post office box rental	52.40	
	Bulletin board	150.00	
	Room rental	140.00	
	Software and disks	114.21	
	Society Act report fee	10.00	
	Office supplies	41.40	
	Minolta copier purchase	212.00	
	Copier supplies	36.98	
	Banking charges	19.50	
	Miscellaneous expenses	13.77	
	Total Expenditures for 1987		1726.16
Dec 31st 1989	Cash on hand	6.35	
	Bank balance	312.90	
	Total year end funds		319.25

Submitted to the Garden City A.C.E. Executive Jan 11, 1990

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in mind which one you are booting with. This is especially important if you have a hard drive because TOS 1.0 had some bugs and restrictions relating to hard drives that TOS 1.4 corrects. Now that you have two versions of TOS at your fingertips, rejoice, you really can have the best of both worlds.

Check out the current issue of the V.I.S.T.A. newsletter for my article on upgrading Atari ST disk drives. This article explains the requirements for upgrading single sided drives in all ST models to double sided drives. If you do not get the opportunity to read the VISTA newsletter and are interested in that article, then please inform the editor who can arrange a reprint in the GCACE newsletter.

That concludes this article on ST TOS switching. If you have any questions on the subject matter presented, please do not hesitate to contact me, telephone advice is always free. Or E-Mail me on the club BBS. Well, happy computing, till next time! **Steven Lennen**